Remarks/Arguments:

Amendments

All the claims have been amended to recite a tennis ball. Independent claim 1 has been amended to recite the features of claims 27, 46, and 48. Claim 48, which recited a tennis ball, has been canceled. All the claims remaining in the application, with the exception of independent claim 1, are dependent, directly of indirectly, on claim 1. Claims 3, 6, 7, 10, 11, 14-23, 29, and 31 have all been amended to recite a tennis ball. Other grammatical amendments have been made. Support for the amendment to claim 10 and for new claims 50 and 51 is found in original claim 9. Support for new claims 52 and 53 is found in original claim 1 and on page 8, line 18. Support for new claim 54 is found on page 5, line 25, to page 6, line 12. Support for newly presented claims 55 and 56 is found on page 8, line 21, to page 9, line 6. Support for new claim 54 is found on page 7, lines 7-9, and on page 8, lines 21-6. It is submitted that no new matter is introduced by these amendments and new claims.

Rejection under 35 USC 112, first paragraph

Claim 27, 29, 31, 39-41, 43-46, and 48 were rejected under 35 USC 112, first paragraph, as being enabling only for felt for tennis balls which, the Office alleges, the specification teaches typically have a wool content of 40% or higher. (emphasis added)

This rejection is respectfully traversed. Attention is directed to page 5, line 25, to page 6, line 22, in which other percentages are disclosed. Therefore, the disclosure is not limited to tennis balls in which the wool content of the felt is 40% or higher.

Rejections under 35 USC 103

Claim 1 has been recited to recite a tennis bell. As shown above, claim 1 recites, among other limitations:

(a) the composition of the felt that is glued to the outer surface of a rubber sphere;

(b) the process of dying the felt; and

(c) the minimum chroma value, minimum lightness value, and minimum reflectance value of the tennis ball.

The tennis ball recited in claim 1 is novel over the art of record. None of the references of record disclose a tennis ball with the minimum chroma value, minimum lightness value, and minimum reflectance value recited in the claim. *See* also, paper 8, page 7, lines 18-21. The issue is whether the tennis ball of record is unpatentable over the art of record. For the reasons given below, applicants assert that claim 1, and the claims dependent thereon, are patentable over the art of record.

With respect to the process limitations recited in claim 1, it was asserted that the former process claims, 1, 3, and 6-23, were unpatentable over Reincke and/or Schmidt, U.S. Patent 3,551,087 ("Schmidt"), in view of Turner, U.S. Patent 5,771,495, Carroll, U.S. Patent 3,847,543 ("Carroll"), and Horlander, U.S. Patent 4,466,900 ("Horlander"). The Office appears to be referring to the English translation of Reincke, rather than to the German original. Throughout this discussion, reference will be made to the English language translation.

This assertion is respectfully traversed for the following reasons.

1. The Office has not made the *prima facie* case.

Claims 1, 3, 6-7, 10-11, 14-23, 31, and 50-57

Wool, even the whitest wool, has a natural yellow tinge. *See, Specification*, page 4, line 26, to page 5, line 5. Reincke also teaches that wool is naturally yellow. Reincke, page 10, lines 13-17. It is applicants' position that the references of record do not, either individually or collectively, suggest that wool should be bleached in a single bleach step when it is being dyed yellow to produce the novel tennis balls of the invention.

Schmidt in view of Turner, Carroll, and Horlander

Schmidt a process for simultaneously dyeing and bleaching a proteinaceous fiber in which the fibers are treated at an elevated temperature as required for dyeing in a neutral or acid aqueous liquor containing (a) an acid dye stable to peroxides, (b) performic acid which is preferably being formed in said liquor during treatment, and an oxygen stabilizer. Schmidt, Abstract.

The Office alleges that Schmidt states that his bleaching and dying process produces dyeings that are "just as beautiful and bright as when the goods have been bleached prior to dying." Schmidt, column 6, lines 37-39. This assertion is respectively traversed.

This partial sentence has been taken out of context. The complete sentence reads as follows:

> A pale blue dying is obtained which is just as beautiful and bright as when the goods have been bleached prior to dying.

Id. (emphasis added); *see also,* column 6,lines 65-67; column 7, lines 18-20; column 8, lines 23-34; column 9, lines 50-51; and 74-75; column 10, lines 39-40, and lines 74-75.

The teaching is not for dyes generally: it is for pale blue dying, a shade and color that would be sensitive to the natural yellow color of wool. *See*, specification, page 3, lines 9-13 (human eye has highest visual efficiency in the yellow wavelengths). Pale violet and pale grey are also taught. *See*, Examples 5, 7, and 14. These are also colors that that would be affected by the natural yellow color of wool.

The Office also asserts that Schmidt teaches that "it is often necessary or desirable to bleach the proteinaceous fiber material so that the dye may have full action." The Office has not explained what is meant by the term "full action." This passage contains no teaching or suggestion that wool should be bleached to remove its natural yellow color when it is being dyed yellow.

Nothing in Schmidt would motivate the person of ordinary skill in the art to bleach wool when it is being dyed yellow with the expectation that it would increase the chroma value, lightness value, and reflectance value of the resulting product.

The additional references (Turner, Carroll, and Horlander) were cited because they allegedly disclosed specific limitations recited by applicants' claims. The Office has not alleged that any of these references teach or suggest that wool should beached to remove its natural yellow color when it is being dyed yellow. Thus, the combination of Schmidt with the additional references does not produce the *prima facie* case. The rejection of claims as unpatentable over Schmidt, in view of Turner, Carroll, and Horlander should be withdrawn.

Reincke in view of Turner, Carroll, and Horlander

Reincke discloses processes in which wool is bleached oxidatively and bleached reductively. Abstract. Reincke teaches that "In order to bleach wool to 'full whiteness,' it is normally treated in two stages of bleaching, generally oxidative first and then reductive, after

intermediate rinsing. Reversing the sequence would lead to a less effective bleaching result. . . ." Reincke, Section 3, page 5. Thus, Reincke, teaches two stage bleaching, a teaching against both applicants' invention and the single bleaching step taught by Schmidt.

The Office asserts that "Reincke teaches that wool is dyed to enhance the brightening effect. In other words, the dull brownish yellow of natural wool is removed in order to produce a brighter shade." Paper 5, lines 9-11. This underlined passage, which is the Office interpretation, is a hindsight reading of Reincke, based on applicants' disclosure. This is improper. Nothing in Reincke suggests that the natural yellow color of wool is "dull brownish." Nothing in Reincke teaches or suggests a process in which wool is bleached to remove the yellow color when it is dyed yellow.

The Office relies on the following statement of Reincke for the teaching of a single bleaching step:

> Wool which is bleached oxidatively or reductively does actually become whiter on exposure to light.

Reincke, Section 3.1, page 5, lines 18-19.

This sentence has been taken out of context. Read in context, the passage reads:

> Not only the higher degree of whiteness but also the improved light-fastness provide good reasons for not being satisfied with one bleaching level. Wool which is bleached oxidatively or reductively does actually become whiter on exposure to light. This leads to the much-feared complaints about the shop-window effect. The fact that the degree of whiteness would decline again on continued exposure to light, is no protection from complaints raised by retailers, often with serious consequences.

Reincke, Section 3.1, page 5, lines 17-23 (emphasis added).

The passage then makes reference to data in Figure 3 which, according to the author, "shows the extent to which whiteness of wool bleached only with peroxide or only with reductive agents increases when exposed to daylight behind glass" and further shows that "combined bleaching" is "hardly likely to lead to complains about light-fastness." *Id.,* lines 23-28.

Read in context, this passage also teaches against both applicants' invention and the single bleaching step taught by Schmidt. The person of ordinary skill in the art, having the advantage of the teachings of Reincke, would not be motivated to use a single bleaching step because Reincke teaches that single bleaching step will cause "much-feared complaints about the shop-window effect" which can often have "serious consequences." The person of ordinary skill in the art, wanting to avoid the serious consequences of the shop-window effect, will be motivated to use two bleaching steps.

A reference that teaches against an invention cannot make it obvious. Therefore, the combination of Reincke with the additional references (Turner, Carroll, and Horlander) is improper and should be withdrawn.

Further, even if, for the sake of argument, the references are combined they do not produce applicants' invention. Nothing in Reincke would motivate the person of ordinary skill in the art to bleach wool when it is being dyed yellow with the expectation that it would increase the chroma value, lightness value, and reflectance value of the resulting product. The additional references (Turner, Carroll, and Horlander) were cited because they allegedly disclosed specific limitations recited by applicants' claims. The Office has not alleged that any of these references teach or suggest that wool should beached to remove its natural yellow color when it is being dyed yellow. Thus, the combination of Reincke with the additional references does not produce the *prima facie* case. The rejection of claims as unpatentable over Reincke, in view of Turner, Carroll, and Horlander should be withdrawn.

Claims 23 and 55-57

Claims 23 and 55-57 each recite a process in which the bleaching step is a reductive bleaching step. In contrast, Schmidt teaches oxidative bleaching using performic acid. Schmidt, Abstract and column 1, lines 51-54. Oxidative bleaching and reductive bleaching are opposite chemical processes. The person of ordinary skill in art, having the advantage of the teachings of Schmidt, would be motivated to carry an oxidative, rather than a reductive, bleach. Thus Schmidt teaches away from the invention taught in claims 23 and 55-57. A reference that teaches away from an invention cannot make it obvious. For this additional reason, claims 23 and 55-57 are allowable over Schmidt in view of Turner, Carroll, and Horlander.

As discussed above, Reincke teaches an oxidative bleaching step followed by a reductive

bleaching step. The person of ordinary skill in art, having the advantage of the teachings of Reincke, would be motivated to carry out a single reductive bleaching step. For this additional reason, claims 23 and 55-57 are allowable over Reincke in view of Turner, Carroll, and Horlander.

2. Unexpected Results

The previous claim to a tennis ball, claim 48, whose limitations have now been incorporated into claim 1, was rejected as unpatentable over the prior art tennis balls shown in the application or in Moore, U.S. patent 5,592,2465, in view of Reincke, Reinert, and Schmidt.

Applicants have supplied data in the application that the claimed tennis ball has higher a croma value, a higher, lightness value, and a higher reflectance value than the closest prior art, fabric used in commercially available tennis balls. Note that the specification discloses that the "High Visibility felt manufactured by Milliken," the third entry in Table 1, is the closest prior art. Specification, page, 21, lines 3-5.

The Office asserted that the differences between the claimed tennis ball and the prior art tennis balls shown in the specification are not significant. At applicants' request to place on the record the reasons why these differences were not significant, the Office expressed the changes as percentages and asserted that the percentages were not significant.

This does nothing more that restate the data. Applicants' assert that the claimed tennis ball has enhanced visibility. Specification, page 4, lines 7-9. As noted in the specification, the human eye has its highest visual efficiency in the yellow wavelengths. Specification, page 3, lines 9-13. On what theory of visual efficiency or reference does the Office conclude that these differences are not significant?

Further, the Office is attacking the differences in properties individually. The Office has only alleged that the difference in each individual property is not significant. Applicants' submit that the differences in all properties together is significant. In particular, the Office is requested to place on the record a reference and/or reasoning that shows that the percentage changes in reflectance, chroma, and lightness <u>together</u> would not lead to enhanced visibility.

The Office assets that the results are not commensurate with the scope of the claims

since the prior art teaches how to brighten wool dyeing. Paper 8, page 7, lines 10-11. This assertion that the prior art teaches the process has been discussed in detail above.

The Office assets that measurement of a single ball is inadequate to overcome the rejection and cites MPEP 716.02(d) and (e) for this "rule." The Office is requested to point out specifically where the requirement for statistical analysis appears in MPEP 716.02(d) and (e).

The Office assets that there is no specific data as to how the prior art balls were constructed or dyed. The Office is requested to point out specifically where the requirement for information about the prior art samples other than the properties relevant to the comparison appears in MPEP 716.02(d) and (e).

Finally, the Office asserts that "the burden is on applicant to prove that his product is superior to a wool blend product dyed and bleached by the processes of Reincke and/or Schmidt." MPEP 716.02(e) quotes the CCPA, predecessor of the Federal Circuit, for the following proposition:

> Requiring applicant to compare claimed invention with polymer suggested by the combination of references relied upon in the rejection of the claimed invention under 35 USC 103 "would be requiring comparing of the results of the invention with the results of the invention."

In re Chapman, 357 F.2d 418, 422, 148 USPQ 711, 714 (CCPA, 1996).

Reincke and Schmidt are relied in for rejection under 35 USC 103. Therefore, the request is improper.

Even if, for the sake of argument, it is assumed that the Examiner has made the *prima facie* case, the *prima facie* case has been overcome be a showing of unexpected results. For this additional reason, it is submitted that the claims are patentable over the art of record.

Conclusion

It is respectfully submitted that the claims are in condition for immediate allowance and a notice to this effect is earnestly solicited. The Examiner is invited to phone applicants' attorney if it is believed that a telephonic or personal interview would expedite prosecution of the application.

Extension of Time

A check for a two-month Extension of Time accompanies this response. Pursuant to 37 CFR 1.136(a)(3), the Director is respectfully requested to consider this check as a constructive petition for an extension of time.

Respectfully submitted,

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The Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. **18-0350** of any fees associated with this communication.

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